United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued January 14, 1994 Decided August 5, 1994

No. 92-1449

NORTHERN STATES POWER COMPANY (MINNESOTA),
NORTHERN STATES POWER COMPANY (WISCONSIN),
PETITIONERS

v.

FEDERAL ENERGY REGULATORY COMMISSION,
RESPONDENT

WISCONSIN PUBLIC POWER INC. SYSTEM;
MINNESOTA POWER & LIGHT COMPANY;
PUBLIC SERVICE COMMISSION OF WISCONSIN;
SOUTHERN MINNESOTA MUNICIPAL POWER AGENCY,
INTERVENORS

Petition for Review of an Order of the
Federal Energy Regulatory Commission

Leonard W. Belter argued the cause and filed the briefs for petitioners.

Katherine Waldbauer, Attorney, Federal Energy Regulatory Commission, argued the cause for respondent. With her on the brief were *Jerome M. Feit,* Solicitor, and *Joseph S. Davies,* Deputy Solicitor, Federal Energy Regulatory Commission.

On the joint brief for intervenors were *Michael P. May, Anita T. Gallucci,* and *Barbara E. James. John D. McGrane, Steven M. Schur,* and *Paul D. Bruner* entered appearances.

Before MIKVA, *Chief Judge,* EDWARDS, and GINSBURG, *Circuit Judges.*

Opinion for the Court filed by *Circuit Judge* GINSBURG.

GINSBURG, *Circuit Judge:* In early 1992 Northern States Power Company (Minnesota) and Northern States Power Company (Wisconsin), sister corporations, jointly filed with the Federal Energy Regulatory Commission a proposed tariff of rates for transmission services. Under that tariff, Northern States (as we shall hereinafter refer to the petitioners) would abandon its practice of charging uniform rates for transmission and instead charge rates that vary with the direction of the

transmission from or across Northern States' control area. The new rates were intended more accurately to reflect the amount of electricity lost in transmissions to different geographic locations.

The Commission took the position that the operator of an integrated utility system such as Northern States may charge for transmission only a standard, system-wide price based (in part) upon average transmission system losses, and summarily rejected the proposed tariff. *See Northern States Power Co. (Minnesota) & Northern States Power Co. (Wisconsin),* 59 FERC ¶ 61,100 (1992), *reh'g denied,* 60 FERC ¶ 61,076 (1992). Northern States, arguing that this rejection was arbitrary and capricious, filed a petition for review. For the reasons set out below, we deny the petition.

I. BACKGROUND

Northern States owns and operates an electrical transmission system that serves parts of Minnesota, North Dakota, South Dakota, Wisconsin, and the Upper Peninsula of Michigan. Northern States uses this system to transmit its own electricity both to retail customers within its control area and to other utilities for resale outside its control area. Northern States also provides unbundled transmission services to other utilities; that is, it transmits electricity across its control area from one utility to another.

The Commission regulates the amount that Northern States (and other utilities) may charge for all such transmission services on a cost-of-service basis. In order to determine a utility's cost of providing a transmission service, the Commission typically treats a transmission network such as Northern States' as an integrated system. In other words, all of the individual facilities used to transmit electricity are treated as if they were part of a single machine. The Commission takes this approach on the ground that a transmission system performs as a whole; the availability of multiple paths for electricity to flow from one point to another contributes to the reliability of the system as a whole. This principle has a strong basis in the physics of electrical transmission for there is no way to determine what path electricity actually takes between two points or indeed whether the electricity at the point of delivery was ever at the point of origin.

As a corollary, in determining permissible prices for transmission services, the Commission treats each transmission customer not as using a single transmission path but rather as using the entire

transmission system. Under this "rolled-in" pricing methodology, therefore, each transmission customer pays its share of the capital costs of the entire system. *See Public Service Co. of Indiana (PSCI),* 56 FPC 3003, 3035 (1976) ("[A]n electric transmission system which operates as an integrated, cohesive network in moving electric energy in bulk and which is designed and constructed to achieve maximum efficiency and reliability at minimum cost on a system-wide basis ... necessitat[es] the adoption of a "rolled-in' cost approach as the "consistent and equitable method of costing electric transmission service' " (quoting *Detroit Edison Co.,* 54 FPC 3012, 3020 (1975))); *see also Maine Public Service Co. v. Federal Energy Regulatory Commission,* 964 F.2d 5, 8 (D.C. Cir. 1992); *Fort Pierce Utilities Authority v. Federal Energy Regulatory Commission,* 730 F.2d 778, 782 (D.C. Cir. 1984).

When electricity is transmitted from one point to another, some of it is unavoidably lost. Described physically, the amount of electrical energy lost in a specific transmission is determined by Ohm's Law: transmission losses are a function of the square of the amount of current flowing on the wire and of the resistance it encounters. Resistance, in turn, varies directly in proportion to the length of the wire. Therefore, as the current on a particular line is generally a constant, the loss associated with a single transmission of electricity is primarily a function of the distance that the electricity is transmitted.

A utility that operates an integrated transmission system experiences its so-called "transmission system losses" in a slightly different manner. On such a system, the predominant flow of electricity is from generating sources to users of electricity ("loads") located elsewhere. For example, suppose that a utility generates most of its electricity in the southern part, and the remainder in the northern part, of its control area. If it sells most of its electricity to load centers located in the northern part of its control area (or to wholesale customers located north of the control area), then the predominant flow on its transmission system would be from south to north.

When a utility sells transmission services, however, it does not transmit specific units of electricity. "A transmission network functions more like a reservoir [than like a railroad]: a given amount of power enters the system at one point and a like amount is delivered at another point." *Fort*

Pierce Utilities Authority, 730 F.2d at 782. Therefore, transmission system losses are proportionally greater when electricity is transmitted in the direction of the predominant flow than when it is transmitted against the predominant flow. (Do you see why?)

The Commission has not in the past taken this fact into account. Instead, again treating the typical transmission system as an integrated whole, the Commission has required that transmission system losses be rolled-in and that all transmission customers pay an equal amount (per unit) of the cost of such losses. This results in so-called "postage stamp" rates: all transmission customers pay the same price to transmit electricity across a utility's system regardless of the distance or the direction of the transmission they require. The transmission customer compensates the utility for the energy lost during transmission either by paying for it—the amount presumed lost being determined by reference to the transmitting utility's average system losses—or, if the customer is another utility, by accepting less electricity at the point of delivery than it provided to the transmitting utility at the point of receipt.

The predominant flow on the Northern States transmission system is from northwest to southeast. In its proposed tariff, Northern States proposed rates for unbundled transmission service that would take this fact into account. Based upon computer simulations, it imputed four different rates of transmission system loss depending upon the direction of the transmission across its control area; they range from 0.77 for deliveries to the north to 3.97 for deliveries to the east. Northern States also proposed to charge transmission customers within its control area for losses of 2.37, presumably reflecting the shorter distance involved in transmitting electricity to them.

The Commission rejected this filing, stating that Northern States' " "proposed loss factors for outside customers are incremental loss factors because they reflect the losses associated with the final increment of load [i.e., a particular flow rather than system-wide losses].' " 60 FERC ¶ 61,076 at 61,252 (quoting 59 FERC ¶ 61,100 at 61,368-69) (bracketed material added by later opinion). Northern States now seeks review of the Commission's order on the ground that it is arbitrary and capricious.

II. ANALYSIS

The Federal Power Act requires that rates for "the transmission ... of electric energy subject to the jurisdiction of the Commission ... be just and reasonable." 16 U.S.C. § 824d(a). Because "[i]ssues of rate design are fairly technical and, insofar as they are not technical, involve policy judgments that lie at the core of the regulatory mission," our review of whether a particular rate design is "just and reasonable" is highly deferential. *Town of Norwood v. Federal Energy Regulatory Commission,* 962 F.2d 20, 22 (D.C. Cir. 1992). Our review is not, however, an empty gesture: the Commission must be able to demonstrate that it has "made a reasoned decision based upon substantial evidence in the record." *Id.*

The Commission rejected Northern States' proposal upon the ground that the utility was proposing a "hybrid rate" made up of a rolled-in capacity component, intended to recover the cost of capital, and an incremental demand component, intended to recover the costs associated with transmission system losses. It said:

> The Commission does not allow the use of incremental loss factors when the transmission charge is developed on a rolled-in basis.... This policy flows directly from the Commission's longstanding practice of requiring that the demand and energy components of a rate be calculated on the same basis. Where, as here, the customer pays for average fixed costs rather than the fixed costs of only certain incremental facilities, logic dictates that the customer pay for average variable costs in the energy charge.

59 FERC ¶ 61,100 at 61,369.

Northern States raises two challenges to the Commission's decision. First, Northern States contends that the Commission erred in conceiving of its proposed loss factors as "incremental." Second, and more broadly, Northern States argues that the Commission has not articulated a rational basis upon which to reject hybrid rates.

A. The "Incremental" Loss Factors

The Commission could not properly have assessed its proposed rates, according to Northern States, if it understood the proposed loss factors to be "incremental" in the sense that they represent the cost it incurs by the addition of a particular load to the transmission system. The Commission seems to be correct, however, when it urges that, read in context, it was using that term to mean "a pricing structure which recognizes that one customer or group of customers receives a benefit from

a part of the system that other customers or customer groups do not." In other words, the computer simulations that Northern States ran to develop the proposed loss factors take the system, under some particular operating condition, as a constant and then attempt to isolate the effect that each geographically-defined group of customers has upon the system.

This explanation of the Commission's use of the term "incremental" makes sense when one recalls how it views an integrated transmission system: each transmission uses the system as a whole. Any attempt to charge a customer for the contribution that its specific transmission makes to overall system transmission losses is analogous to pricing transmission service on the basis of the facilities used to serve the particular customer; it is, in effect, an attempt to determine the incremental cost of that transmission. Therefore, we see no reason to believe that the Commission misunderstood or improperly characterized the proposed tariff as providing for "incremental loss factors" and hence "hybrid rates."

B. Hybrid Rates

More broadly, Northern States asserts that the Commission's decision to reject its proposed tariff was irrational because there is no reason to require that a utility be "consistent" by recovering its fixed costs (capital) and variable costs (such as transmission system losses) upon the same basis, i.e., either incremental or rolled-in. In essence, Northern States asserts that the Commission failed to recognize that certain transmission customers impose greater losses upon the system than do others, and that all customers ought to be charged for the losses that they actually cause rather than for the loss imposed upon the system by the average customer.

Although the Commission has not expressly announced that it requires utilities to use either rolled-in or incremental rates with respect to both fixed and variable costs, it has in fact adhered to that policy. It came closest to making a general policy pronouncement to this effect in *Southern California Edison Co.,* 20 FERC ¶ 61,301, at 61,589 (1982), when it said in response to a customer's challenge to transmission rates, that "[t]o require Edison to compute separate loss factors when transmission plant is computed on a rolled-in basis would be inconsistent." *See also Pacific Gas & Electric Co.,* 53 FERC ¶ 61,146, at 61,525 (1990) (approving the use of average system losses as

a means of setting rates). Hence, the rate design that the Commission imposed upon Northern States is consistent with how transmission services have historically been priced in fact. Perhaps the case for consistency has been thought too obvious to warrant elaboration. After all, if a longer transmission causes greater system losses than a shorter transmission, then it also presumably uses more of the utility's facilities (i.e. longer lines). Why would the Commission authorize the utility to roll-in one type of cost while recovering the other incrementally?

Northern States answers that rhetorical question as follows: Unlike a fixed cost, such as the capital used to build a transmission system, transmission loss is a variable cost that depends upon a number of factors, including how much electricity is on the system at any one moment and in what direction that electricity is flowing. Insofar as it is possible to assign costs to the customers who cause the utility to incur them, it is more efficient to do so, and while it is not possible in the case of capital costs, it is in the case of transmission system losses.

There is also an important similarity between capital costs and transmission losses, however. Just as each transmission customer benefits from the existence of the entire system, the transmission losses occurring system-wide at any one time are caused by all the users on the system—are a function, that is, of the amount and direction of their aggregate demand. Therefore, it is not irrational to conclude that each and every transmission user is equally responsible for all the transmission losses occurring on the system at any one time. In other words, just as each customer enjoys the benefits of the transmission system as an integrated whole, each customer is responsible for an indivisible portion of the transmission system losses imposed upon the system by the configuration of the group of customers using it at any one time.

This point is never made explicit in the Commission ruling under review, but it is fairly implicit. Thus, the Commission takes Northern States to task for basing rates upon "the final increment of load" imposed upon a system otherwise viewed as a constant, *i.e.,* rather than accounting for the fact that all users are fairly responsible for (i.e., cause) the losses associated with each user's transmission. When we recall in addition that the Commission regarded the proposed tariff as a distinct departure from its historical practice in regulating transmission rates, the path of

the agency's reasoning is clear enough to survive review. *Cf. Pacific Northwest Newspaper Guild, Local 82 v. NLRB,* 877 F.2d 998, 1002 (D.C. Cir. 1989) (noting that the court "may approve a curt explanation if the path of the agency's reasoning is clear").

We pause before closing to note that the Commission is currently conducting a study of, and may issue new rules regarding, the pricing of transmission services. *See* 58 FED. REG. 36,400 (July 7, 1993) (FERC Docket No. RM93-19-000) (requesting comments "concerning whether it is appropriate to revise the Commission's present pricing policy for transmission services provided by public utilities under the Federal Power Act"). The Commission has specifically requested comments on the type of rate design that would "[p]romote efficient use of and investment in the transmission grid and provide appropriate price signals to transmission customers"; in particular, the Commission has asked interested parties to discuss pricing options that would, among other things, accurately "reflect the distance- and location-sensitive costs of transmission service." Federal Energy Regulatory Commission, *Staff Discussion Paper: Transmission Pricing Issues* at 7 (issued in conjunction with the request for comments in Docket RM93-19-000). That the Commission is looking at these issues in a rulemaking proceeding is not, of course, a factor in our decision to deny review; the order under review either does or does not reflect a reasoned decision. It is reassuring nonetheless to know that the Commission will be giving further consideration to whether Northern States' proposal is, from a policy perspective that would be inappropriate in a reviewing court, a preferable way of setting transmission prices.

III. CONCLUSION

For the foregoing reasons, we do not believe that the Commission was arbitrary or capricious in rejecting Northern States' proposed tariff. The petition for review is therefore

Denied.